

DNVGL Subsea JIPs

Status and Way Forward

Anders Husby

The story so far....

Subsea Initiatives 2014 -2016

Since the drop in oil price mid 2014, the industry focus on effectiveness and cost cutting has increased.

Subsea Forgings

Standardized Forgings
DNVGL-RP-0034

Subsea Documentation

Standardized Documentation
DNVGL-RP-0101

Subsea Processing

Current DNV GL JIP

Subsea Certification

Certification of Subsea Equipment and Components
DNVGL-ST-0035

Steel Forgings for Subsea Applications

Challenge

- Company specific requirements to forgings for subsea systems result in long delivery times

Delivery

- Phase 1 completed: DNVGL-RP-0034 with harmonized technical requirements for forgings
- Phase 2 ongoing: DNVGL RP with harmonized quality management and surveillance requirements for forgings

Benefits

- Harmonized requirements enables stocking of forgings
- The industry will benefit from reduced lead time and better consistency, repeatability and quality of forgings



With courtesy of BRÜCK GmbH

Schedule:

Phase 1: Nov 2013 – Des 2014

Phase 2: Sept 2015 – Des 2016

Operators	Contractors	Manufacturers
       	    	       

DNVGL-RP-0034 – Where are we now?

DNVGL-RP-0034 issued Feb. 2015

Applicable for carbon and low alloy steel forgings

Current status

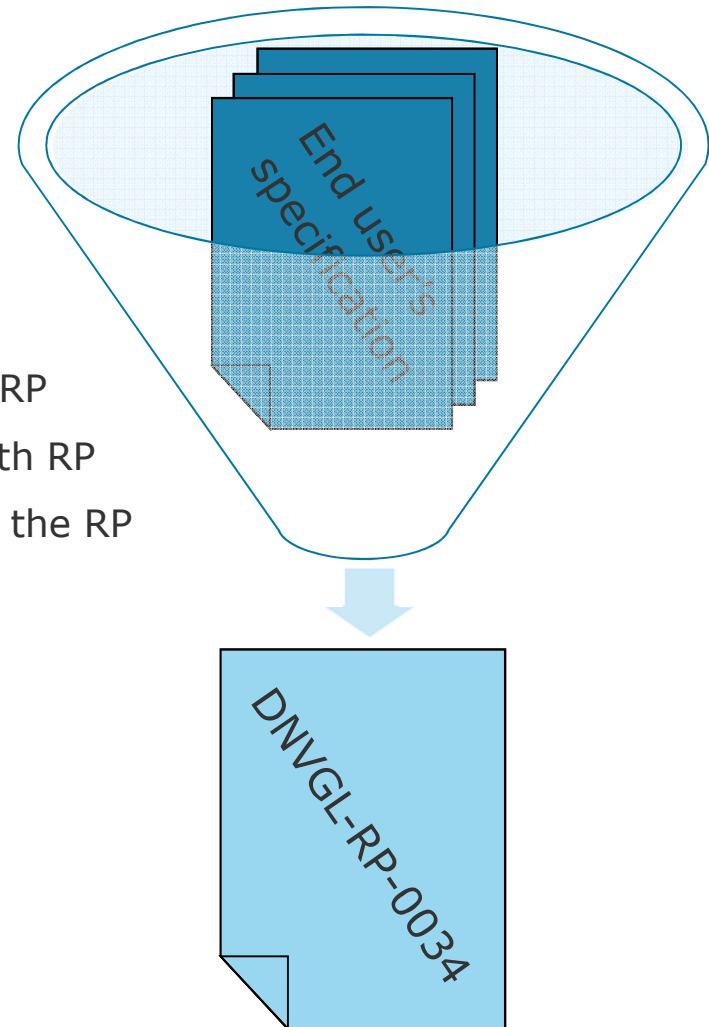
Operators: Company requirements have been replaced by RP

Contractors: Qualifications have been performed in acc. with RP

Manufacturers: Have delivered forgings in accordance with the RP

Efforts such as this JIP are essential in economic environments that we as an industry currently are experiencing. Realization across the spectrum from operator to vendor to forgemaster that increased efficiency benefits all parties is evidenced by the number of companies implementing DNVGL-RP-0034.

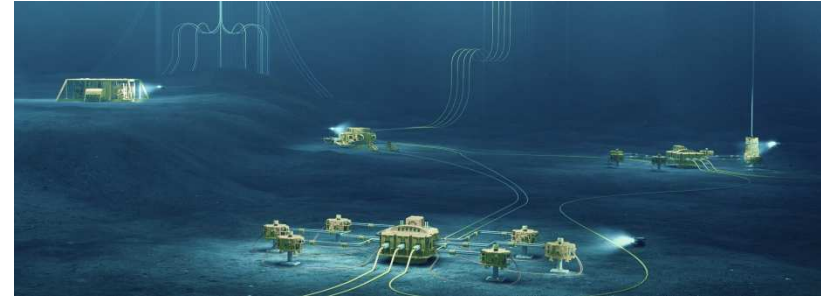
*Dr. Brian Newbury, ExxonMobil
Steering committee chairman*



Subsea Processing JIP – Standardization of Subsea Pumping

Objective

To reduce cost in a lifetime perspective for subsea processing



Alignment of operators and system suppliers through this standardization initiative can make a significant contribution in achieving this cost reduction goal”

Graham Henley, Vice President, Shell Projects & Technology

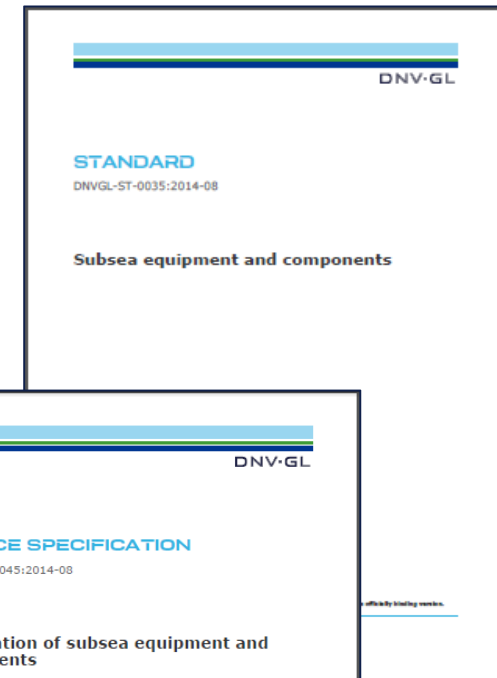


Certification of Subsea Equipment and Components

DNVGL-ST-0035 builds on global, internationally recognized codes and standards, as well as DNV GL offshore standards and references.

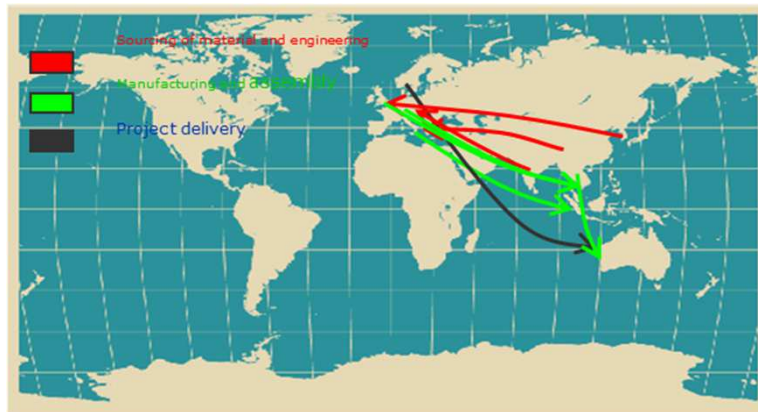
We have not "re-invented the wheel" or provided any new set of requirements to the industry.

In some areas clarifications of how to apply the various parts of the referenced standards have been added. These clarifications are based on past experience and found necessary for the safe and reliable operation of subsea equipment.



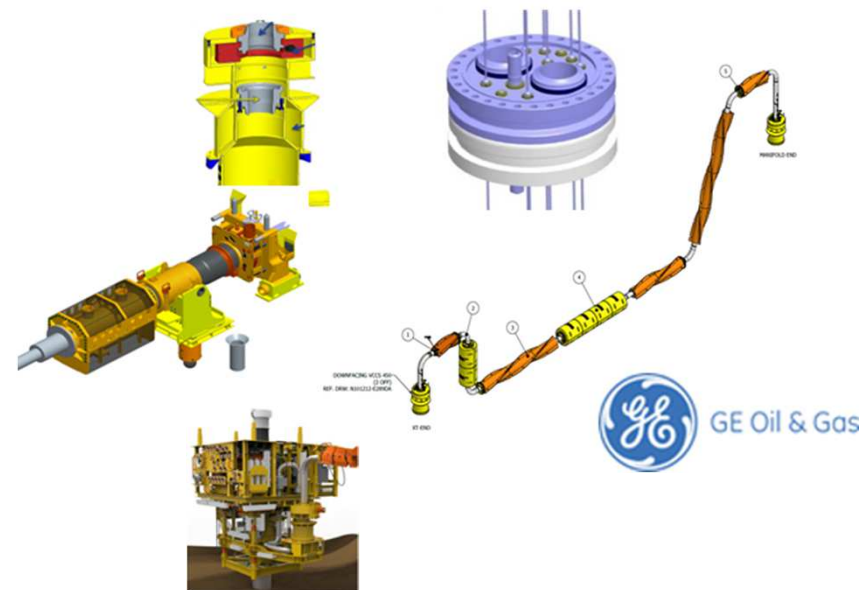
DNV GL Certification scope for INPEX Ichthys LNG Project

A truly global project



Product certificate scheme was assigned for the following equipment:

Equipment	No of Units Certified
Manifold	5
Connection Systems	100
Jumpers	24
Valves	120
XT	22
Subsea Distribution Module	1



The future....

Standardization of welding requirements for Subsea Equipment

CHALLENGE

A number of differing requirements for welding of subsea pressure containing equipment exists today, from the major oil and gas operator's company specific requirements to other standards such as API, ASME and ISO.



Solution

- Develop a guideline that harmonizes requirements with regards to welding of subsea pressure containing equipment, including inspection requirements of the welds.

Benefit

- Reduced cost and time while improving quality through reduced project uncertainty and non-value added work.
- Reduced amount of qualification work performed in each project
- Enable procurement and pre-stocking of welded components

Value

- **Lead time reduction** up to 6 months. Achievable with standardized welding requirements and reuse of welding procedures.

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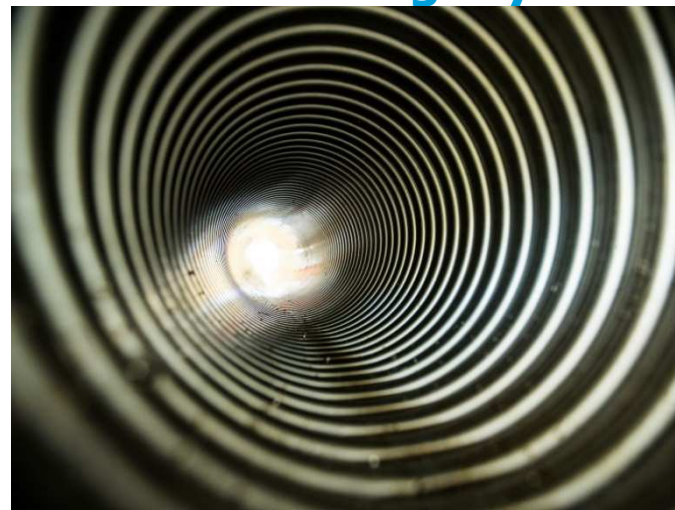
Region: Norway

ID: 2016-20

JIP ID – 129 – Increased confidence in flexible riser integrity

CHALLENGE

The failure rate for flexible pipes on the Norwegian Continental Shelf is high – 1,5 % in 2013 per flexible pipe per operational year. There is currently no standard or guideline for establishing the condition of a flexible pipe in place.



Solution

- Establish a guideline for condition assessment of a flexible pipe based on current knowledge and new development

Benefit

- By use of the new guideline operators will be able to establish the condition of flexible pipes. This will result in:
 - Fewer failures
 - Life extension
 - Any replacement needed can be planned

Value

- May reduce production loss > 100 MNOK per year
- May reduce replacement cost > 100 MNOK per riser

Contact: cathrine.tonhaugen.sletta@dnvgl.com, +47 908 84 956 **Region:** Norway (co-operation with other regions)

DNV GL JIPs – Subsea

- <https://www.dnvgl.com/oilgas/joint-industry-projects/subsea-joint-industry-projects.html>



Subsea processing JIP - Standardization of subsea pumping

Initially, the JIP will focus on standardization of subsea pumping, an important enabler for a profitable and reliable subsea future.



Steel forgings for subsea applications - phase 2

The JIP shall ensure efficient implementation of the upcoming DNVGL-RP-0034 in the subsea industry. Case studies are (...)



Standardized subsea documentation JIP

As a result of this JIP (running 2014 to 2015), the DNVGL-RP-O101 'Required technical documentation for subsea projects' is soon (...)

Proposed JIPs - Subsea and well

Find out more about our proposed subsea- and well-related joint industry projects.



Decommissioning assurance - Knowing your assets

The industry has limited collaboration and knowledge sharing in decommissioning, the little guidance and few regulations (...)



Innovation and integration of offshore service vessels

In order to stay competitive in the market, offshore service vessels need to utilise their maximal capacity in an effective way.



Prediction of flexible riser annulus environment

Flexible risers can be subject to aggressive internal environments affecting fatigue and fracture performance and reducing the (...)



Standardization of subsea welding requirements

A number of differing requirements for welding of subsea pressure containing equipment exists today, from the major oil and gas (...)



Increased confidence in flexible riser integrity

The failure rate for flexible pipes on the Norwegian Continental Shelf is high - 1,5 % in 2013 per flexible pipe per operational (...)



Optimized decommissioning of flexible pipelines

A number of flexible pipelines are reaching the end of their design life, but there is no best practice available ensuring that (...)



Sour HPHT fatigue testing for clad subsea components

The latest High Pressure High Temperature (HPHT) design guidelines in API 17TR8 require subsea equipment (...)



Well intervention blowout risk assessment

Upstream operators face increasing challenges to economically and safely operate on existing wells. Well intervention (...)



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